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a free layer a magnetic direction of which freely rotates; and
a barrier layer formed on the free layer and having a smaller thickness in
a first region,
a region of the free layer corresponding to the first region functioning as
a sensor portion for sensing an external magnetic field,
the first region being a region inside the edge part of the barrier layer.

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5. (Twice Amended) A magnetic head comprising the magnetic sensor
according to claim 1 or 2.

6. (Twice Amended) A magnetic encoder comprising the magnetic
sensor according to claim 1 or 2.

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7. (Amended) A magnetic head comprising a ferromagnetic tunnel
junction element including a free layer, a magnetic direction of which freely rotates, and a
fixed layer which is opposed to one surface of the free layer through a barrier layer,
magnetic direction of the fixed layer being fixed by an antiferromagnetic layer which is
adjacent thereto,

an end portion of the free layer being extended from the ferromagnetic
tunnel junction element, and being connected to a member of high permeability,